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THE PROBLEMS OF
AIR TRANSPORTATION IN
NORTHERN ONTARIO



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THE PROBLEMS OF
AIR TRANSPORTATION IN
NORTHERN ONTARIO

DEPARTMENT OF ECONOMICS AND DEVELOPMENT
Special Research and Surveys Branch
October 4, 1963

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MAP OF AIR TRANSPORTATION FACILITIES IN NORTHERN ONTARIO

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NORTHERN DEVELOPMENT COMMITTEE

RESOLUTION

WHEREAS the Trans Canada Highway from the Lakehead area west to the Manitoba boundary is in an unfinished state,

AND WHEREAS in February of 1963 the Minister of Highways stated that the present time schedule is two to three years to finish current construction;

AND WHEREAS the areas presently under construction represent only a portion of the unfinished highway;

AND WHEREAS this is the only area in Canada west of the Lakehead where a good highway up to Trans Canada standards does not exist;

AND WHEREAS the economy of the Northwestern Ontario is suffering, both in loss of tourist revenue and in cross country transport now being diverted to the United States;

AND WHEREAS the importance of this highway cannot be assessed by comparable traffic counts and dealt with on this basis in competition for capital expenditure to be made by Government;

AND WHEREAS the present schedule does not appear to project a finished Trans Canada Highway west of the Lakehead in the foreseeable future;

AND WHEREAS contracts which have been let in past years have not been completed expeditiously and have not resulted in completed sections of any satisfactory length conforming with the Highways standards required;

AND WHEREAS we deem it of major national economic importance that this highway be finished;

THEREFORE, BE IT RESOLVED that the Ontario Government plan and project the completion of the highway west of the Lakehead over a reasonable period of time and let contracts with finish deadlines so that all may know that the highway will be finished, and when, and that all of this be done as expeditiously as possible.

RESOLUTION

THAT the Ontario Economic Council grant financial support to the Northeastern Ontario Development Association in the amount of \$5,000. to assist in the preparation of an economic survey of the District of Temiskaming.

This economic survey is being undertaken at the request of the people of the district. It will be similar in nature to the recently completed economic survey of the District of Cochrane and will be a combined inventory of statistical data and an objective analysis of economic problems found in the area. Recommendations for the improvement of the overall economy will be addressed to the people of the district for their consideration and implementation if accepted.

RESOLUTION

WHEREAS the economic development of Northern Ontario is being retarded due to (1) lack of scheduled airline service between the unorganized districts and the municipalities of Northeastern and Northwestern Ontario, and (2)

WHEREAS it is only possible through loss of valuable time and extra expense to reach business centres in Northeastern Ontario from Northwestern Ontario and from Northwestern Ontario to Northeastern Ontario, under existing means of transportation, and

WHEREAS provision of suitable landing strip and/or airport facilities is the first essential toward the development of air service, and

WHEREAS, the Federal Government now shares the cost of capital expenditures on certain municipally-operated airports in Northern Ontario,

NOW THEREFORE this Committee recommends that the Federal Government extend this form of assistance to any municipality in Northern Ontario desirous of establishing satisfactory air transport terminal facilities and that the Province of Ontario contribute to the maintenance and operational costs of municipally maintained airports in Northern Ontario.

THE PROBLEMS OF AIR TRANSPORTATION
IN NORTHERN ONTARIO

Introduction

The present study was undertaken in order to investigate representations made through the Northern Ontario Development Committee, in which the opinion was expressed that a lack of adequate rapid air transportation services tends to retard the economic development of the northern parts of the Province. Two reports, issued by the Northwestern Ontario Development Association, emphasized the desirability of improving the situation and suggested that a solution to the problem might be found in:-

- (a) the adoption of the United States system of subsidization on C.A.B.-certified routes;
- (b) the assignment of reliable economic route packages to regional air carriers;
- (c) the establishment of a system of airstrips in a north-south pattern.

At a meeting on May 3, 1963, the Northern Development Committee of the Ontario Economic Council approved a Resolution containing the following recommendations:

- (1) that the Federal Government extend its policy of subsidizing the construction of approved airports to any northern Ontario municipality desirous of establishing an airport;
- (2) that the Province contribute on a 50-50 cost-sharing basis to the maintenance of municipal airports in northern Ontario.

This Report presents a brief survey of present airport facilities and air transportation services in northern Ontario. It examines existing provisions under Federal Government legislation with respect to the subsidization of airport construction and the application of this policy in specific situations. Costs of airport construction, operation and maintenance are reviewed. Finally, the problems connected with the expansion of northern air services are analyzed, suggestions submitted to the Ontario Economic Council discussed and recommendations made regarding possible solutions.

I PRESENT AIRPORT AND AERODROME FACILITIES IN NORTHERN ONTARIO

Northern Ontario, for the purpose of this report, will comprise that part of the Province located north of the French River and the Mattawa River. Its total land area is 317,625 square miles - 87 per cent of the total land area of Ontario. All incorporated cities, towns and villages are located in an area occupying approximately one-quarter of the Province's northland and it is here that the need for air transportation, in addition to existing facilities, has been mainly advocated. The remaining three-quarters are almost without adequate surface transportation.

In March of this year there were 140 airports or aerodromes in all of Northern Ontario.

AIRPORTS AND AERODROMES, BY TYPE OF OPERATOR, MARCH, 1963

	<u>Northern Ontario</u>		<u>Province of Ontario</u>	
	<u>No.</u>	<u>%</u>	<u>No.</u>	<u>%</u>
<u>Federal Government</u>				
Department of Transport	19		28	
Royal Canadian Air Force	3		15	
Canadian Army	<u>-</u>		<u>1</u>	
	22	15.7	44	17.5
<u>Ontario Provincial Government</u>				
Department of Lands & Forests	17	12.1	24	9.6
<u>Air Transportation Companies</u>	49	35.0	76	30.2
<u>Industrial Companies</u>	21	15.0	25	10.0
<u>Townships and Corporations</u>	4	2.9	23	9.2
<u>Other</u>	<u>27</u>	<u>19.3</u>	<u>59</u>	<u>23.5</u>
Total	140	100.0	251	100.0

Airports operated by air transportation and industrial companies accounted for 50 per cent of airports in Northern Ontario, while in the Province the corresponding percentage was only 40 per cent. Airports operated by townships and corporations are comparatively less important in Northern Ontario than in the Province as a whole.

AIRPORTS AND AERODROMES,
BY PHYSICAL TYPE, MARCH, 1963

	<u>Northern Ontario</u>		<u>Province of Ontario</u>	
	No.	%	No.	%
Land	38	27.1	120	47.8
Land and Water	1	0.7	2	0.8
Water	48	34.3	61	24.3
Water and Ice	52	37.2	67	26.7
Ice	<u>1</u>	<u>0.7</u>	<u>1</u>	<u>0.4</u>
Total	140	100.0	251	100.0

While land bases are numerically more important than both water and water and ice bases in the Province, the reverse is true in Northern Ontario, where the latter together account for more than 70 per cent of the total number of bases in the area. Generally, the utilization of water bases is restricted to the open water season (approximately five months, depending on location and weather). Similarly water and ice bases are normally in operation for a period of about four months in the winter and five in the open water season.

AERODROMES (LAND), ACCORDING TO
OPERATING RULES, 1963

	<u>Northern Ontario</u>	<u>Province of Ontario</u>
Instrument Flight Rules (IFR)	15	29
Regularly Operational Visual Flight Rules (VFR)(1)	12	55
Non-regularly Operational VFR	<u>12</u>	<u>38</u>
Total, Aerodromes (Land)(1)	39	122

(1) Includes land and water aerodromes.

Aerodromes operating according to IFR, e.g. Lakehead and Kapuskasing, are generally capable of accommodating larger aircraft than those only operating according to VFR, e.g. Hearst and Toronto Island. In areas where distances between airports are considerable, IFR provisions are of greater significance, since they enable air-bases to operate 24 hours per day. Thus Northern Ontario has a substantially higher percentage of airports operating according to IFR (38.5%), than the Province (24.2%) and accounts for more than half of all aerodromes in the Province operating according to IFR.

II SCHEDULED AND NON-SCHEDULED FLYING OPERATIONS IN NORTHERN ONTARIO

Air carriers are classified according to the type of service offered.

The principal classifications are: -

Class 1: public transportation of passengers and goods at a toll per unit between designated points in accordance with a schedule.

Class 2: public transportation of passengers and goods at a toll per unit between designated points on a route pattern and with some degree of regularity.

Class 3: public transportation of passengers and goods at a toll per unit from a designated base to serve a defined area or a specific point or points.

Class 4: public transportation of passengers or goods from a designated base at a toll per mile or per hour for the charter of the entire aircraft.

Class 1 Carriers

There are two carriers providing Class 1 scheduled commercial air services in Ontario - Trans-Canada Air Lines and Canadian Pacific Air Lines. Of the two, only TCA has services connecting with points in Northern Ontario. All such TCA flights are serviced either by Viscount or by Vanguard jet-prop aircraft.

<u>Class 1 Carrier</u>	<u>Route</u>	<u>Frequency</u>
TCA	Toronto-Sault Ste. Marie-Lakehead-Winnipeg	2 flights per day
	Toronto-Sudbury-Timmins	2 flights per day
	North Bay-Sudbury	3 flights per day
	Toronto-North Bay-Earlton-Rouyn-Noranda-Val d'Or-Ottawa	Daily

Class 2 Carriers

The two carriers, who provide Class 2 specific point commercial air services in Ontario, both operate in the northern part of the Province. Austin Airways Ltd. use aircraft up to DC3 and Curtiss C46 sizes. TransAir Ltd. services its routes between Sioux Lookout and Pickle Lake and between Winnipeg and Red

Lake with DC3 airline equipment. The Churchill-Montreal route utilizes DC4 aircraft.

<u>Class 2 Carriers</u>	<u>Route</u>	<u>Frequency</u>
Austin Airways Ltd.	Moosonee (or Moose Factory)-Albany-Attawapiskat	2 flights per week
	Moosonee-Rupert House etc.-Fort George	3 flights per week
	Moosonee-Henrietta-Marie-Winisk-Fort Severn	2 flights per month
	Moosonee-Great Whale River-Port Harrison-Powungnetuk-Sugluk	1 flight per week
	Timmins-Porquis Airport-Moosonee or South Porcupine-Nellie Lake-Moose Factory	1 flight per week
TransAir Ltd.	Sioux Lookout-Pickle Lake	Daily
	Winnipeg-Red Lake	4 flights per week
	Churchill-Winisk-Ottawa-Montreal	Weekly

Class 3 Carriers

There are eight Class 3 carriers serving Ontario, six of whom operate in Northern Ontario. Carriers which provide Class 3 services do so depending upon the amount of traffic which is offered to them. It is within the rights of these carriers to refuse to carry the traffic if, in their opinion, it is insufficient to meet the minimum set by the company.

<u>Class 3 Carriers</u>	<u>Points Served</u>
Austin Airways Ltd.	Nakina, Sudbury
Georgian Bay Airways Ltd.	New Liskeard, South Porcupine, Parry Sound
Lakeland Airways Ltd.	Temagami
Ontario Central Airlines	Kenora, Red Lake
Parson Airways Ltd.	Kenora
TransAir Ltd.	Pickle Lake, Sioux Lookout

Class 4 Carriers

In Ontario there are 118 carriers who provide Class 4 charter commercial air services. Mattagami Airlines Ltd. operate a Class 4 service between Kapuskasing and Timmins on a Class 3 basis.

III EXISTING PROVISIONS FOR FEDERAL GOVERNMENT PARTICIPATION IN AIRPORT CONSTRUCTION

The responsibilities of the Department of Transport (D.O.T.) of the Government of Canada in regard to assistance for airport construction have been established in five general categories - namely, main line airports (including supplementary, alternate and satellite), development airports, local airports, remote airports and seaplane bases.

Mainline Airports

The D.O.T. assumes responsibility for the provision of the necessary facilities at airports required for the operation of scheduled air carrier services utilizing multi-engine aircraft with at least 3 schedules per week into areas provided with good ground transportation or at least 1 schedule per week in areas dependent upon air transportation almost entirely.

However, where an airport in this category is now owned by a municipality and the D.O.T. proposes to expand its facilities, the D.O.T. must first obtain title to the land by nominal sum transfer to the Crown. When the work is completed the airport would be leased to the municipality for continued operation if it were considered desirable to do so. In the latter event the municipality would remain responsible for the provision of airport buildings except for a capital grant which might be made by the D.O.T. to the municipality for any space required for use by Federal inspection services.

The D.O.T. assumes similar responsibilities for supplementary airports which are those made available for use when the Mainline Airports become un-serviceable. These include airports providing enroute facilities, alternates or terminal alternates.

In major urban areas where the density of traffic at a Mainline Airport makes it advisable to relieve the traffic by the construction of a satellite airport for executive and light aircraft, the D.O.T. will support the construction, development and operation of such a satellite. If possible, the satellite airport would be leased to the City which it would primarily serve.

Local Airports

Local Airports are those primarily of interest to the municipality or

area which they would serve. Financial assistance as outlined below may be given to municipalities, counties or provinces for the development of airports with one runway of at least 4,000 feet, or where the site would permit the development of a runway of this length provided that it is determined from economic studies that Federal participation would be justified on the basis of reasonable air traffic potential including light aircraft and up to medium size twin-engine aircraft such as those utilized for executive purposes by industries, etc. If a municipal, county or provincial authority is prepared to purchase the land for such an airport, transfer it to the D.O.T. for a nominal sum, and undertake its operation and maintenance upon completion, the D.O.T. could match the cost of construction of the field itself with the public authority on a dollar-for-dollar basis, up to a maximum contribution of \$100,000. All buildings, utility services, access roads, etc., would be the sole responsibility of the local public authority. However, in computing its share, the local authority will be permitted to include the cost of the land and clearing or zoning easements required to protect the proper zoning of the airport including legal fees incurred during the acquisition of the land. All such contributions are dependent upon approval being obtained from the Treasury Board and subject to the provision of funds in the Estimates of the D.O.T., approved by Parliament.

Development Airports

Development Airports are lesser airports for which scheduled services are not necessarily foreseen, but the establishment of which would contribute greatly or be essential to the development of natural resources. If the project is considered of national importance the entire cost of construction may be borne by the D.O.T. although the local interests would have to provide the site of the airport and be responsible for its operation upon completion. If the project is only of limited and local benefit, the local interests would in addition to the above responsibilities, have to undertake the cost of development with 50-50 cost-sharing assistance by the Federal Government, the Federal contribution not exceeding \$100,000. The other criteria for this class of airport are the same as those applicable to Local Airports to which reference is made above, except that if assistance is approved for payment to interests other than a public authority (e.g. an industrial or mining company) the cost of land acquisition may not be

included in the cost-sharing formula.

Remote Airports

Remote Airports are small air strips essential to the maintenance of administrative or health services in isolated communities where means of transportation are infrequent, unreliable or non-existent. Postal authorities and other agencies such as the Department of Health would be consulted when assessing the requirements, before a project is authorized. In such cases the local interests would not be expected to participate in the airport development on a cost-sharing basis, other than that they must acquire the land free of mineral or timber rights, transfer title to the Federal Crown for a nominal sum and agree to operate and maintain the airport including access roads, and also provide any necessary airport structures and utility services. A minimum standard runway length of less than 4,000 feet will be accepted for a Remote Airport if circumstances warrant. Under these conditions the D.O.T. would bear the cost of construction by means of a contribution up to \$50,000.

Seaplane Bases

The D.O.T. may also provide funds to the Department of Public Works for the construction of docks, float-buoys and ancillary services for Seaplane Bases but only when it has been established that the site is satisfactory for aircraft operations, that the volume of air traffic will be significant and that the base will be regularly used by more than one commercial operator. The foreshore to which the dock would be attached must be acquired by the municipality or aviation interest and transferred to the Crown for a nominal sum. The local interest must assume responsibility for construction and maintenance of any necessary access road to the dock and agree to operate and maintain the base as a public airport to accommodate the commercial operators and private aircraft owners. The commercial operators must of course agree to base their activities at the dock to be constructed. If the operators already established in the area indicate that they are not prepared to utilize the federal dock there would not be justification for its development.

IV COSTS OF AIRPORT CONSTRUCTION

The construction of any Mainline Airport is always a multi-million dollar operation, the cost of which varies tremendously with the requirements of the specific project being undertaken. The estimated costs of Local Airport construction vary similarly from a minimum of \$60,000 to over \$500,000. Costs as low as \$60,000 were achieved on a site in northern Quebec, largely as a result of contributions in kind from local industry, local population and the municipality; such low costs rarely occur. Given reasonably good conditions of terrain etc., the average cost of construction of a Local Airport would be about \$200,000, of which subject to favourable economic feasibility reports, approval of the D.O.T. and of the Treasury Board etc., the D.O.T. would be prepared to finance 50 per cent up to a maximum of \$100,000.

It should be noted that the original estimated cost of a Local Airport might differ from the final cost by as much as 100 per cent. Thus, in the case of a proposed airport at Fort Frances the estimated costs were \$500,000, but there is good reason to suppose that the ultimate cost would have been closer to the \$1 million mark. As mentioned before, the Federal Government is not able to contribute more than a maximum of \$100,000 to the final costs.

There are cases where a municipality is not in a position to finance its share of a projected Local Airport cost-sharing agreement with the D.O.T. It has been suggested that although, normally, only ratepayers inside a municipality are legally responsible for the cost, those in fringe areas might also obtain substantial benefits from the development of an airport. In an instance such as this, it would be advisable to make use of Section 377, paragraph 9 of the Municipal Act, which states that:

"By-laws may be passed by the councils of all municipalities....
...for the establishment of or for granting aid to the establishment of air harbours or landing grounds in compliance with the Air Regulations (Canada), and for granting aid for aeronautical research work and for the development and general advancement of the science of aeronautics and the use of aircraft; and the councils of any two or more municipalities may enter into an agreement for the establishment of an air harbour and the joint exercise of all the powers and rights contained in this paragraph upon such terms as may be agreed and may entrust the control and management of any air harbour or landing ground so established to a commission appointed by such councils pursuant to agreement.

- (a) For the purposes of this paragraph, the council of a local municipality may acquire land in the municipality or in an adjacent or an adjoining municipality or in any adjacent or adjoining territory without municipal organization situate in one or more territorial districts. R.S.O. 1950, c. 243, s. 386, par. 7; 1953, c. 70, s. 10 (1).
- (b) A commission appointed under this paragraph is a body corporate and, subject to the terms of the agreement, where the control and management of an air harbour or landing ground have been entrusted to it by the parties to the agreement, may establish an air harbour or landing ground or acquire by lease or otherwise an existing air harbour or landing ground in any municipality.
- (c) The cost of operating, maintaining and improving the air harbour or landing ground, and the establishment of hangars and other buildings and facilities, shall be borne by the municipalities as provided in the agreement.
- (d) Such an agreement shall not be for a longer period than ~~ten~~ years. 1959, c. 62, s. 17 (1)."

Thus, the Municipalities Act provides for two or more municipalities to appoint a commission for the purposes of airport construction and also establishes a general framework within which such a commission would operate, including provision for the financing of both construction and operating costs.

V COSTS OF AIRPORT OPERATION AND MAINTENANCE

Cost Structure

The costs of airport operation and maintenance vary both with the size of the individual airport and with the volume of traffic which utilizes the facilities provided. Since an airport is normally operated as an integral unit, the accounting procedures of most airport authorities do not permit the breakdown of total airport operation costs into maintenance and other factor costs. Furthermore, where airports are operated by air transportation and industrial companies, the actual costs of airport operation cannot be determined exactly, since they are often absorbed into the overall air transportation or industrial operation.

Thus, it has not proven possible to obtain complete data for all land airport operation and maintenance costs, although all land airport operating authorities in Northern Ontario were asked to supply this information. Consequently, most of the data obtained was incomplete and, additionally, was not readily classifiable - the only exception to this was the cost figures provided by the Federal Department of Transport (D.O.T.). Although the D.O.T. data provided a breakdown of total operating costs into salaries, municipal service costs, building and equipment repair costs and all other charges for 21 airports operated by D.O.T. in the Ontario portion of the D.O.T. "Toronto Region"*, accounting procedures did not permit a cross-category breakdown into maintenance costs and other charges. It was subsequently agreed that, for airports other than the larger mainline airports, maintenance costs would be approximately 12.5 per cent of total operating costs.

*The D.O.T. "Toronto Region" comprises part of western Quebec and most of the Province of Ontario apart from some areas in the Northwestern Region well to the west of the Lakehead.

ACTUAL AVERAGE ANNUAL OPERATING COSTS FOR 21
LAND AIRPORTS, INCLUDING 6 MAJOR AIRPORTS,
OPERATED BY D.O.T. IN "TORONTO REGION"

	<u>Total Costs per Airport</u> \$	<u>Salaries</u> \$	<u>Municipal Services</u> \$	<u>Building and Equipment Repairs</u> \$	<u>All Other Charges</u> \$
1960-61	116,501	67,323	12,312	12,759	24,106
1961-62	130,510	69,659	10,890	14,918	35,033
1962-63	130,059	72,757	11,069	11,639	34,594

ACTUAL AVERAGE ANNUAL OPERATING COSTS FOR 15 LAND
AIRPORTS, EXCLUDING SIX MAJOR AIRPORTS,
OPERATED BY D.O.T. IN "TORONTO REGION"

	<u>Total Costs per Airport</u> \$	<u>Salaries</u> \$	<u>Municipal Services</u> \$	<u>Building and Equipment Repairs</u> \$	<u>All Other Charges</u> \$
1960-61	23,143	14,821	975	2,953	4,394
1961-62	24,535	14,834	1,019	3,107	5,575
1962-63	21,882	13,653	1,020	2,675	4,534
Mean Costs	23,186	14,436	1,005	2,912	4,834

The mean costs figures were subsequently used to arrive at estimates of annual costs of operation for all land airports in both the Province of Ontario and Northern Ontario, excluding those operated by government bodies. These estimates assume, *inter alia*, that climatic differences will not differ by any substantial margin, that the cost structures of non-D.O.T. operated airports will be similar to that of those operated by D.O.T., and also that factor costs will not differ significantly.

ESTIMATES OF ANNUAL OPERATING COSTS FOR ALL LAND
AIRPORTS EXCLUDING THOSE OPERATED BY
GOVERNMENT AUTHORITIES

	<u>No. of Land Airports</u> \$	<u>Total Costs</u> \$	<u>Salaries</u> \$	<u>Municipal Services</u> \$	<u>Building and Equipment Repairs</u> \$	<u>All Other Charges</u> \$
<u>Province of Ontario</u>						
I.F.R.	8	185,000	115,000	8,040	23,300	38,700
V.F.R.	70	1,620,000	1,010,000	70,350	204,000	338,000
Total	78	1,810,000	1,130,000	78,400	227,000	377,000
<u>Northern Ontario</u>						
I.F.R.	2	46,000	28,900	2,010	5,820	9,670
V.F.R.	16	371,000	231,000	16,080	46,600	77,300
Total	18	417,000	260,000	18,090	52,400	87,000

These estimates for annual costs of airport operation - and, also, the actual costs of operation of D.O.T. airports - exclude provisions for amortization and depreciation of capital expenditures.

Operation and Maintenance Costs Subsidization

Although most municipalities seeking to construct or enlarge airports are able to make some assessment of the desirability of having an airport, few are aware of the fact that only an extremely small number of them - and those primarily the largest airports with numerous scheduled services - are able to break even on a financial basis without any form of subsidy; and those which do apparently break even fail to do so if equitable capital costs were charged. Present Federal Government policy only permits payment of operating subsidies to airports receiving scheduled airline services (Class 1 only). Thus, generally, the individual municipality would undoubtedly have to consider its overall financial position, since it would be responsible for the continued operation and maintenance of the airport. On occasion, an industry which might benefit extensively from the operation of the airport might be able to assume this responsibility on behalf of the municipality.

It has been suggested that a subsidy equal to 50 per cent of municipal airport maintenance costs might result in improved air transportation in the north. We have, therefore, made estimates concerning the cost, to the Provincial Government, of a 50 per cent subsidization of maintenance costs of municipally-operated airports in Northern Ontario. The maintenance costs per airport are estimated at 12.5 per cent of total operating costs per airport, which were estimated at \$23,186 (see Table on page 12), or approximately \$3,000 per airport. Thus the costs to the Provincial Government of a 50 per cent subsidy of airport maintenance costs is estimated at slightly less than \$1,500 per airport.

Of the four municipally-operated airports in Northern Ontario, one is an ice base (Kenora) and one, (the City of Sudbury airport) is a

Mainline Airport receiving subsidies from the D.O.T. Therefore, the estimated costs of the subsidization of maintenance costs of the two remaining municipally-operated airports in Northern Ontario would be approximately \$3,000 per year. The costs of a 50 per cent maintenance subsidy for all land airports in Northern Ontario and in the Province, excluding those operated by government authorities, have been calculated in the following table.

ESTIMATES OF COSTS TO PROVINCIAL GOVERNMENT OF 50 PER CENT
SUBSIDIZATION OF MAINTENANCE COSTS OF ALL LAND AIRPORTS
EXCLUDING THOSE OPERATED BY GOVERNMENT AUTHORITIES

	<u>No. of Land Airports</u>	<u>Estimated Total Operating Costs \$</u>	<u>Estimated Maintenance Costs \$</u>	<u>Estimated Costs of 50 Per Cent Subsidy of Maintenance Costs \$</u>
<u>Province of Ontario</u>				
I.F.R.	8	185,000	23,100	11,600
V.F.R.	70	1,620,000	202,000	101,000
Total	78	1,810,000	226,000	113,000
<u>Northern Ontario</u>				
I.F.R.	2	46,000	5,700	2,900
V.F.R.	16	371,000	46,400	23,200
Total	18	417,000	52,100	26,000

A subsidy of \$1,500 per airport towards maintenance costs is not likely, in itself, to lead to the construction of additional airports, to any substantial increase in the number of scheduled services or, in general, to any significant improvement of air transportation in the North.

VI RECENT APPLICATIONS OF FEDERAL POLICY CONCERNING
AIRPORT CONSTRUCTION IN NORTHERN ONTARIO

The complex nature of the problems involved in decisions of whether to construct or not to construct an airport can be best comprehended by the case study method. The economic feasibility studies prepared by the Air Economics section of the Federal Department of Transport, to help determine whether Federal participation in construction of particular proposed airports on the basis of reasonable air traffic potential would be justified or not, are extremely useful in this respect, especially when supplemented by material from other sources. The more recent of such studies deal with requests for assistance in the construction of airports at Fort Frances (July 3, 1958), Elliot Lake-Blind River (January 15, 1959), Atikokan (February 10, 1959), Moosonee (April 16, 1959), and Kirkland Lake (February 6, 1963).

FORT FRANCES

The opinion was expressed that Fort Frances would constitute a good Local Airport case pursuant to the existing policy and this would warrant Federal investment up to \$100,000 on a 50/50 cost-sharing basis. Fort Frances was not considered a Mainline case since the type and frequency of possible route services were of such a nature as to make it extremely unlikely that a regular service with DC-3 or large aircraft would be provided in the foreseeable future. The qualification of Fort Frances as a reasonably good Local Airport case was justified because of the (then) existing volume of route services and the supplementary fact that, during the summer months in particular, a fairly substantial number of tourist and other aircraft might be expected to utilize it.

Air facilities at present serving Fort Frances include the airport at International Falls, Minnesota, a privately-owned and operated 2,200 ft. airstrip at Fort Frances and various water bases. The International Falls airport is roughly six road miles from Fort Frances.

Concerning the use of the International Falls airport the Air Economics Branch of the D.O.T. reported that during the months of May and

June, 1958, "Ontario Central Airlines paid \$1,091 in customs clearance charges for 122 scheduled landings and 55 other trips." Similarly, Mr. R.D. Turner, President of TransAir Ltd. is on record as saying that:

"The international aspect of the route between Winnipeg, Kenora and International Falls, added considerably to the cost of operation by reason of customs and immigration requirements and the complexity of procedural regulations of the Civil Aeronautics Bureau of the United States. For some unclear reason our possession of a licence to operate a scheduled service into the U.S.A. resulted in a new and drastic limitation on our freedom to conduct charter flights into that country. These factors coupled with surprisingly poor traffic results confronted TransAir with losses beyond our company's ability to meet indefinitely. In the 12-month period ending June 30, 1962, expenses outran revenues by more than \$72,000. The licence has, at our request, been suspended by the Air Transport Board until June 1, 1964." However, both the Ontario Central Airlines operation and the TransAir operation showed that, even with intensive promotional efforts, the passenger potential necessary to justify the introduction of scheduled services did not exist.

The current opinion concerning the Winnipeg-International Falls route is that its future has been "killed" by new highways.

Nevertheless, the International Falls airport might reasonably be considered a fairly satisfactory airport for Fort Frances. However, the customs and similar problems which led to a decision to construct a Canadian airport at Sault Ste. Marie would seem equally applicable at Fort Frances and, in addition to the normal local pride, might provide some justification for the construction of a Canadian airport.

Additionally, many hundreds of small aircraft flights per year are made to and from Fort Frances by small and medium tourist and charter aircraft, particularly during the summer months. It is true that these flights are at present all made with float or amphibious aircraft, but it is a reasonable assumption that quite a large number of U.S. tourist

and other charter and itinerant aircraft would utilize a strip at Fort Frances if one were built.

No airport has yet been constructed at Fort Frances - apparently almost entirely due to financial reasons. Due to difficulties of terrain, clearance of land, etc., the cost of construction of an airport at the optimum site available was estimated at \$500,000. The Federal Department of Transport, subject to the existing regulations, had offered to finance the construction on a 50/50 cost-sharing basis with the municipalities - up to the maximum limit of \$100,000. Thus the municipality was left with the task of finding \$400,000, or 80 per cent, towards the cost of the airport. The municipality was not prepared to support the construction of an airport to that extent.

It should be noted that, theoretically, the town of Fort Frances is capable of financing such an undertaking. Its assessment for 1962-63 was \$16,118,425 and its total debenture debt on December 31, 1961 was \$1,662,134, most of which was self-liquidating. Of course, the Ontario Municipal Board keeps firm control over the financing of municipal capital expenditures, and generally it would refuse to sanction all further municipal loans to municipalities whose total debt would exceed 20 - 25 per cent of the total assessment, after allowing for self-liquidating debt. An additional restriction on any municipality in Ontario is that its expenditure is limited to the municipality's ability to meet it within its term of office.

ELLIOT LAKE-BLIND RIVER

Suggested plans for airport construction near Elliot Lake were abandoned as being impracticable in view of unreasonable cost of development. Attention was focussed on a much more favourable site from a construction standpoint near Blind River. This site was difficult to justify in terms of usefulness to Elliot Lake since it was 42 road miles from Elliot Lake, or almost half the distance to Sudbury.

T.C.A. indicated that it did not intend to serve the area. Even if it did, the time Elliot Lake passengers to or from Toronto would

save in using a Blind River airport rather than the one at Sudbury would not justify the development of a major airport. Blind River itself has insufficient traffic potential to warrant a major airport.

Local Airport cost-sharing treatment at Blind River was accordingly recommended by the Department of Transport. It was felt that any airport developed should be capable of expansion to accommodate scheduled services if this ever becomes necessary. It was also suggested that Blind River authorities approach other communities in the area which may be interested in developing the airport in an attempt to spread the local share of the costs as widely as possible.

An airport at Elliot Lake-Blind River has not yet been constructed, neither is there any concrete plan for such an airport at the present time. The possible need for such an airport has apparently declined with the slump in the uranium mining industry. Difficulties of financing construction and the proximity of Sudbury airport have also been contributory factors. Furthermore, the Ontario Department of Highways, in June of last year, shelved plans for the construction of a direct highway linking Blind River to Elliot Lake as it was felt that the economic situation no longer warranted such a highway.

ATIKOKAN

The existing airstrip at Atikokan, owned and operated jointly by Steep Rock Iron Mines Ltd. and Caland Ore Company is a base 3,000 feet in length, varying in width from 100 to 150 feet. With no overshoots at either end and poor approach at one, it is considered unsafe for scheduled operations. Extension of the existing strip would be an extremely costly operation; a very rough estimate is that in excess of a million yards of fill may have to be moved.

Atikokan could not be regarded as either a Remote Area, or a Development Airport case. The community is reasonably well served by daily C.N.R. passenger trains west to Winnipeg and east to the Lakehead. King's Highway 120, which at present ends at Atikokan, connects the community with the Trans Canada Highway 92 miles to the east and the Lakehead

an additional 34 miles away. The Ontario Department of Highways is fast closing the 90 mile gap between Atikokan and Fort Frances to the west. When this work is completed in 1965, the already low volume air traffic potential which at present exists will decline sharply. Even when Ontario Central Airlines operated Class 3 services on the route Winnipeg-Kenora-Fort Frances-Atikokan-Fort William, Atikokan itself generated only 63 emplaning passengers during a four-month period, or about 4 passengers per week on average. The combination of low traffic volumes, necessarily low rate levels and the need to compete with surface transportation are adverse circumstances which would not be resolved by airport construction at Atikokan and will be accentuated by the closing of the Fort Frances-Atikokan gap.

No evidence has been found to suggest that other carriers would show a better performance at Atikokan, or would be interested in serving this point. Summer tourist traffic is already adequately taken care of by two charter operators with float-equipped planes.

With no prospects of economically sound scheduled operations, Atikokan cannot be treated as a Mainline Airport case. Even if a carrier were to guarantee regular route services, the probable very high capital expenditures on the project would have to be mainly apportioned to the traffic generated by such services.

Considering population size and potential, as well as economic factors, Atikokan might have represented a good Local Airport case. As such, it would have been subject to a Federal cost-sharing contribution of up to \$100,000. However, the local authorities have not reversed their statement that they cannot assume any financial obligations whatsoever for the airport project and there is no indication that the mines might want to shoulder the very heavy development costs over and above the federal share. Thus, Local Airport treatment is also out of the question for Atikokan.

MOOSONEE

The economic feasibility report prepared by the Federal Department of Transport held that a very good case for construction of a permanent airport at Moosonee exists. It recommended that the project, which probably would become part of the Mainline Airport system in due course, be treated as a Development Airport. It meets all the necessary qualifications: potential service to the development of natural resources, terminal point of surface transport and trans-shipment from larger land planes to amphibian or float equipped, development of 4,000 foot runway possible, and extension possibilities for accommodation of DC-4, C-46 and Bristol Freighter class of equipment present. In fact, judging from traffic potential, Moosonee could be treated as a 'major' Development Airport. As such, the Federal Department of Transport would assume all costs of the project, except for the land which the local authority (probably the Province) would have to provide.

However, it was suggested that cost-sharing, as envisaged for 'minor' Development Airports, with the Province and/or the Ontario Northland Railway might well be considered advantageous by the Department of Transport.

The feasibility report also observed that:

"A permanent airport at Moosonee will really be fully useful if and when a number of other good strips in James Bay, in addition to the military ones at Winisk and Great Whale, are developed. Airfield construction at the following points might, in time, be considered: Fort Albany, Attawapiskat, Rupert's House, Fort George, Port Harrison.

It seems desirable to think eventually in terms of a system of permanent airstrips to serve the more important centres in the James Bay and Hudson Bay region, but in any event Moosonee is the key point in such a network and therefore warrants first priority for airport development."

It should be noted that the James Bay and Hudson Bay routes of Austin Airways are serviced by aircraft equipped for wheel/ski operations during the winter and amphibious aircraft during the summer.

The Moosonee project has not been proceeded with as yet on account of restrictions imposed on Government spending by the Federal Government's austerity program of June, 1962.

KIRKLAND LAKE

On February 6, 1963, the Economic Policy and Research Division of the Department of Transport expressed the opinion that Kirkland Lake did not have mainline potential and that it was difficult to find a strong argument in favour of the construction of a local airport at this location. The experiences of Austin Airways at Kapuskasing and of Nordair on the Lake Ontario route proved that it was extremely difficult to provide regular scheduled services at a profit on low density, short haul operations (i.e. below 125 miles).

The suggestion that T.C.A. should stop at Kirkland Lake, perhaps alternating between this point and Earlton, could not be considered seriously. Earlton is centrally located with respect to a number of communities such as New Liskeard, Cobalt, Haileybury, Englehart, Kirkland Lake and Larder Lake. The use of Kirkland Lake as an alternate point of landing would mean some improvement for the latter community but, at the same time, a worsening of the situation for various other population centres. As a result, T.C.A. would experience very little increase in revenue and, at the same time, have the additional cost of running two stations rather than one. As with most of T.C.A.'s other internal routes, T.C.A.'s cost data indicate that it is already losing money on its Toronto-North Bay-Earlton-Rouyn-Val d'Or-Ottawa-Montreal route. The net loss to D.O.T. at Earlton in 1960-61 was \$17,859. A similar net deficit would probably be incurred if a Mainline Airport were constructed at Kirkland Lake.

Additionally, Kirkland Lake is only 41 miles by road from Earlton and 58 miles from Rouyn. As the Regional Director of Air Services at D.O.T.'s Toronto Region has stated, "travelling by car from any of these centres to the Earlton airport is generally less, and more reliable, than that encountered by the vast populations served by the larger International Airports at Toronto and Montreal." Thus, under present circumstances, there is little evidence to support the contention that an airport at Kirkland Lake would have mainline potential.

As far as Local Airports are concerned, present D.O.T. policy restricts the federal interest to airports which serve multi-engine aircraft. D.O.T. have stated that 50 such multi-engine movements per year at Kirkland Lake is a generous estimate, and a substantial number of these would be transfers from nearby airports. The number of small-plane owners (presently six, listing their home address as Kirkland Lake) might be doubled if a new airport were constructed. The minimum estimated cost of a local airport such as that proposed for Kirkland Lake is \$60,000. A feasibility report prepared by D.O.T. indicated that the construction of a Local Airport at Kirkland Lake would not be justified and that the main results of such expenditures would be that a moderate amount of traffic would be drawn from Earlton to Kirkland Lake.

Following the rejection of their proposals by the Department of Transport, local interests in Kirkland Lake represented by the Chamber of Commerce decided, in spite of the Department's view, to proceed with the construction of an airstrip. The work was completed this year without financial assistance from Federal authorities, since the project did not fall within the Federal policy regarding financial aid with respect to airport construction.

VII SOME ECONOMIC ASPECTS OF REGULAR AIRLINE SERVICES

The existence of a scheduled airline service between any two centres can only be justified economically when the community of interest between the two centres will sustain a sufficient, economic traffic volume. Furthermore, the minimum distance over which short-haul air transport can compete effectively with good surface transport and without subsidy - given a sufficient and fairly regular flow of passengers - would be approximately 125 miles. As Mr. R.D. Turner, president of TransAir Limited, stated: "The size of communities served is not the primary indicator of traffic potential. The main factors appear to be the availability, or otherwise, of competitive forms of transportation and the time advantage of air travel."

Air carriers are constantly searching for opportunities to develop additional scheduled services, in the hope of increasing their profits. Several of them have initiated new services and - after a period of trial - abandoned them as unprofitable. For example, about two years ago, Nordair Ltd. opened a Lake Ontario route from Kingston to Hamilton and in 1958, Austin Airways Ltd. commenced operations on the Kapuskasing-Timmins run. Losses incurred forced the companies to discontinue these services within a year. Both operators found that, although revenue could be estimated within reasonable limits, it was extremely difficult to forecast expenditures.

It may be of interest to relate the experiences of Austin Airways Ltd. with respect to its Class 2 service between Kapuskasing and Timmins. Despite contrary advice from T.C.A., Austin Airways Ltd. decided to go ahead with the Kapuskasing-Timmins-Rouyn-Noranda route by initiating a twice-daily service. Due to several factors, the service was soon limited to Kapuskasing-Timmins only. The Company found that the "peakiness" of the traffic, varying from an average of four passengers per flight during weekdays to twenty or more at weekends, required two different types of aircraft for an efficient operation. Additionally most of the passengers from Kapuskasing were bound

for Toronto. Therefore, they had to have connecting T.C.A. reservations from Timmins to Toronto. Previously T.C.A. had found that heavy losses were occurring on two feeder routes operated by them, one being a Prairie route and the other from Kapuskasing to Timmins; both were removed from service. Subsequently substantial rescheduling of T.C.A.'s aircraft took place in order to utilize the equipment to a point of maximum efficiency. Thus, T.C.A. were never in a position to guarantee Austin Airways Ltd. more than eight seats on any of their Timmins-Toronto flights. This resulted in Austin Airways Ltd. having to decline some Kapuskasing-Toronto traffic. The Company estimated losses incurred on this route at \$10,000 per month. Consequently, after a short period of trial, the service was withdrawn.

TransAir Ltd. is able to maintain its operations in Northern Ontario principally because of indirect subsidies towards its capital costs. Thus, as R.D. Turner, president of TransAir Ltd., said, "At present the four daily return flights per week (between Winnipeg and Red Lake) more than cover the 'added costs' of the operation, but fall short of breaking even on a 'fully allocated' cost basis". The two principal indirect subsidies received by TransAir are (1) the awarding of the Dew-Line contract and (2) a confidential agreement with T.C.A. by which TransAir Ltd. received a Viscount turbo-prop aircraft plus Viscount servicing and maintenance facilities at negligible costs.

The opinion of several experts and the experience gained by carriers who have actually initiated Class 2 air services in Northern Ontario and found them to be financially unprofitable, would indicate that an expansion of the Class 2 air services network in the northern part of the Province could not be realized without subsidization. The amount of the subsidy would be substantial, for example, Austin's experience on the Kapuskasing-Timmins route demonstrates that in order to maintain a twice-daily service on this run of only 110 miles, an annual subsidy of \$120,000 would

be required to allow the Company to break even. If four or five such services were in operation, the total in annual subsidies required would easily be over half-a-million dollars or considerably more if distances flown were larger.

A factor not to be overlooked is the discontent of unsubsidized Class 2/3 flight operators and charter flight operators, who would consider government-subsidized air services to constitute unfair competition. This attitude is exemplified in the field of surface transportation, where trucking organizations have repeatedly attacked the Federal Government for subsidizing the Canadian National Railways and not providing similar aid with respect to road transportation. It is, indeed, conceivable that the initiation of subsidized regular air services could lead to the demise of charter flight operations or, at least, a considerable decline in this type of business. This appears to be one of the reasons why the Federal Government has, so far, refrained from subsidizing small companies operating regular air services. The Ottawa authorities regulate all air services, including air charter operations, in Canada; it is understandable that they would be reluctant to upset the existing balance by providing financial assistance in certain instances, particularly as the resulting benefits might appear to be questionable or not easily identifiable.

It is almost certain that an increase in the number of regular air services on a subsidized basis would require substantial outlays by the Government. In the case of T.C.A. it is recognized that, while overseas services such as the Trans-Atlantic route are quite profitable, practically all internal routes are incurring considerable losses. Conditions prevailing in the United States are equally revealing. Subsidization of internal scheduled air services costs the American taxpayers \$69 million per year and a major concern of their Government is to prevent this figure from rising to \$100 million.

One of the difficulties in deciding whether or not it is justified to spend a certain amount in government funds for the improvement of air transportation services lies in the fact that the relationship between the subsidy granted and the benefits derived cannot readily be expressed in a cost/benefit study, the advantages being of an indirect nature. A decision to construct a new road or to open a new air service, or to refrain from doing so, is usually prompted by the interests not only of the area in which the new facilities are established, but also, of the much larger community represented by a State, Province or Nation.

Thus, the desirability of a new transport facility will be conditioned partly by the existing transport facilities. In the United States transportation policy, and in particular air transportation policy, has become more communications-orientated as practically all geographic obstacles to transportation have been overcome. A new service may be initiated in that country in order to strengthen a weak link in this network and thereby making the whole system more effective, despite the fact that a fairly dense network of both surface and airline connections - both from east to west and from north to south - is already available. Canada, in contrast to the southern neighbour, still has vast territories, in the north and elsewhere, awaiting development. Thus in Canada transportation policy is more resource-orientated, particularly in the north. It is quite possible that expenditures for the purpose of providing transportation in inaccessible areas will benefit the nation more than expenditures resulting in additional transportation in areas already adequately serviced.

Various factors, (a) the economic development of a specific area (e.g. Northern Ontario), (b) the general interests of the larger community (e.g. the Province) and (c) the development of natural resources, may well induce a government to decide that subsidization of certain air transportation services is warranted. We shall, in the

following chapter, investigate with respect to Northern Ontario what improvements in existing transportation facilities and services are likely to be most beneficial and indicate what forms of government subsidies might be considered.

VIII THE PROBLEM AND SUGGESTED SOLUTIONS

Background

At a meeting of the Northern Development Committee of the Ontario Economic Council on May 3rd, 1963, the following Resolution was approved:-

"WHEREAS the economic development of Northern Ontario is being retarded due to (1) lack of scheduled airline services between the unorganized districts and the municipalities of Northeastern and Northwestern Ontario, and (2)

WHEREAS it is only possible through loss of valuable time and extra expense to reach business centres in Northeastern Ontario from Northwestern Ontario and from Northwestern Ontario to Northeastern Ontario, under existing means of transportation, and

WHEREAS, provision of suitable landing strip and/or airport facilities is the first essential toward the development of air service, and

WHEREAS, the Federal Government now shares the cost of capital expenditures on certain municipally-operated airports in Northern Ontario,

NOW THEREFORE this Committee recommends that the Federal Government extend this form of assistance to any municipality in Northern Ontario desirous of establishing satisfactory air transport terminal facilities and that the Province of Ontario contribute an amount equal to 50% of the maintenance costs of municipally maintained airports in Northern Ontario."

With respect to the first two paragraphs of the Resolution, we wish to emphasize that, although existing regular airline services in Northern Ontario may not satisfy needs, there is by no means a lack of air transportation services. It should be recognized that there is always a substantial number of charter operators who are ready to provide costly, but efficient, air transportation in the area.

The Recommendations of the Northern Development Committee

In order to improve and extend air transportation services in Northern Ontario, the Committee recommends:

- 1) that the Federal Government extend the policy under which it shares the cost of capital expenditures on certain municipally-operated airports to any municipality in Northern Ontario desirous of establishing satisfactory air transport terminal facilities.

In fact, the Federal Government is prepared to give this kind

of assistance to any municipality (up to a maximum of \$100,000), provided the facilities to be constructed meet certain minimum requirements and a feasibility study shows a genuine need for the suggested airport. What the Committee recommends is, apparently, that the Federal Government lower the minimum standards now in force which determine the eligibility of a municipality for this form of aid.

Past experience has shown that, in some cases where the Federal Government is willing to assist, the municipality is not able to raise its share of the required capital. However, our investigations have shown that the reason why Northern Ontario does not have more extensive regular air transportation services is not in the first place a lack of airports or airstrips. Experiments and studies, some of which have been outlined in this report, have demonstrated that on several routes, regular air services appeared not to be economically feasible, in spite of the availability of adequate ground facilities.

There is no reason to assume that an increase in the number of airports or improvements of existing fields would result in an increase of regular services. The main problem lies in the low traffic potential. We can see no reason, at this time, to ask the Federal Government to lower the standards which now determine whether they will contribute to the capital expenditures of municipal airports. While such a measure might be of some help to a municipality that wishes to accommodate charter flight operators, it could not be expected to lead to improved or additional regular services.

A further recommendation of the Committee was:

- 2) that the Province of Ontario contribute an amount equal to 50 per cent of the maintenance costs of municipally maintained airports in Northern Ontario.

We have already indicated in Chapter V that at present there are in Northern Ontario only two non-subsidized municipally operated

land airports. Furthermore, we estimated that even if a 50 per cent subsidy on maintenance costs were extended to all land airports in Northern Ontario excluding those operated by government authorities, the total subsidy would amount to only \$26,000, or about \$1,500 per airport. We fail to see how a subsidy of this nature could provide a stimulus to the development of air transportation services in the north. Maintenance costs of airports represent a very small portion of the total expenditures involved in the operation of scheduled flights. Only financial aid designed to partially compensate for costs of operation could, in our opinion, result in a significant expansion of regular air services in Northern Ontario.

The Resolution of the Northern Development Committee points out two main shortcomings in the present air transportation system of northern Ontario:

- (A) There is a lack of scheduled airline services between the unorganized districts and the municipalities of Northeastern and Northwestern Ontario.

It is understood that the term "unorganized districts", as used in the Resolution, implies those populated centres which have not yet become incorporated municipalities, such as Kirkland Lake, rather than those areas of Northern Ontario with very low population density, e.g. the Patricia portion of Kenora.

With respect to Kirkland Lake, specifically, it is of interest note that Mattagami Airlines is seriously considering the extension of its operations between Kapuskasing and Timmins (a Class 4 charter service presently operated on a Class 3 basis) to Kirkland Lake and North Bay. A landing strip has been established to this end by the local Chamber of Commerce at Kirkland Lake.

Basically, the problems associated with a lack of regular airline services between the "unorganized districts" and the incorporated municipalities are similar to those underlying the lack of regular flights between most municipalities in Northeastern Ontario and communities in Northwestern Ontario: insufficient traffic potential at

the rates an air transportation company has to charge in order to make a regular service profitable. Our comment and suggestions under point (B) will, therefore, largely apply to the air transportation problems of "unorganized districts" as well.

- (B) It is only possible through loss of valuable time and extra expense to reach business centres in Northeastern Ontario from Northwestern Ontario and from Northwestern Ontario to Northeastern Ontario under existing means of transportation.

A look at the map appended to this report shows that (apart from the Toronto - Sault Ste. Marie - Lakehead - Winnipeg route operated by T.C.A.), there is a substantial gap in existing air services between the Northeastern and the Northwestern Regions of Ontario (see map and Chapter II). Thus, there are, at present, no regular direct air services linking Timmins, Sudbury, North Bay, Kapuskasing, Earlton etc. to the Northwestern Region. Various measures have been proposed for the closing of this gap and for satisfying the need for additional air services, but there appear to be no economic incentives for the implementation of these proposals. The fact that all air transport companies including charter companies are fully cognisant of D.O.T. regulations concerning scheduled flights etc. and are also constantly looking for new market opportunities is itself an indication of the probable uneconomic basis for additional air services in Northern Ontario.

With a view to providing northern communities with better air transportation services, several plans have been advocated, for example:

- (a) A direct east-west regular service, connecting centres in northeastern Ontario with communities in the northwest;
- (b) A "circular" route, which may be thought of as comprising three parts:
 - (1) an eastern part, perhaps linking Earlton, Timmins and Kapuskasing;
 - (2) a similar western portion, covering centres such as Atikokan,

Fort Frances, Kenora and Sioux Lookout and (3) a central portion between these points but north of the T.C.A. route which passes through the Lakehead and Sault Ste. Marie.

- (c) Fan-shaped systems of feeder routes, connecting northern municipalities to centres served by T.C.A.

It should be pointed out here, that those portions of the suggested routes which showed the most promising traffic potential have in the past been serviced by various air transportation companies and abandoned as unprofitable, namely, in the east the Kapuskasing-Timmins route (by both T.C.A. and Austin Airways Ltd.) and in the west, the Winnipeg-Kenora-Fort Frances-Atikokan-Fort William route by Ontario Central Airlines, Ltd., and the Winnipeg-Kenora-International Falls route by TransAir Ltd.

With respect to the central portion between east and west, several air transport operators are of the opinion that traffic potential would be quite insignificant.

Mr. R. D. Turner, President of TransAir Ltd., has been quoted, in the "Air Services Survey in Northwestern Ontario" prepared by the Northwestern Ontario Development Association, as saying that "It does not appear likely to us that there would be a sufficient community of interest to sustain an air service between the Lakehead and Timmins." Mr. J. A. M. Austin of Austin Airways Ltd. has expressed a similar view, adding that the number of passengers on such a route would probably be substantially below the 5.6 passengers per flight-mile which Austin Airways Ltd. experienced on their illfated Kapuskasing-Timmins route.

It has been suggested that, since T.C.A. services a route from Toronto to Earlton etc. and one to Timmins, connecting North Bay and Sudbury as well, and since the trans-Canada T.C.A. service passes through Sault Ste. Marie from Toronto to the Lakehead, a service linking the northeast to the northwest could be provided by closing the Sudbury-Sault Ste. Marie gap. Mattagami Airlines have advanced plans to service this route on a Class 4 basis with some degree of regularity. Although it might be thought that T.C.A. would be in a position to operate such a service more economically than its competitors, they have not done so. A market study prepared by T.C.A. for internal use early this year indicated that

a service connecting Sault Ste. Marie to Sudbury, either as a new service or as an additional stopover on the way from Toronto the Lakehead, could not operate on an economic basis.

Surface Feeder Routes

It is interesting to note that one of the reasons which led to the decision by T.C.A. not to provide service between Sudbury and Sault Ste. Marie was the recent introduction of a "rail-liner" which travels the distance between these two places in $3\frac{1}{2}$ hours. This demonstrates the desirability of thoroughly investigating the possibilities which surface transportation may offer in solving the transportation problems of the north, before resorting to the generally much more costly establishment of air services. For example, it is evident that completion of the Fort Frances-Atikokan highway will practically eliminate the need for a scheduled air service between these two places. We would, therefore, strongly recommend that the potential of surface transportation be thoroughly investigated before requests are made for the introduction of subsidized air services. We suggest that negotiations be opened with the railway companies in order to study the feasibility of introducing additional rail-liner services in Northern Ontario. As the railway companies - probably spurred by the publication of the reports issued by the Royal Commission on Transportation - are engaged in programs designed to streamline their operations and appear to be making genuine efforts to serve the people of this country more efficiently, they may be quite responsive to requests of this nature.

The desirability of introducing new express bus services and of constructing new highways and upgrading existing roads should also be part of this research. The advantage of new roads is that they not only provide a means of rapid transportation between terminal points but may serve a multiplicity of purposes. They may lead to the development of previously inaccessible natural resources or of a profitable tourist industry.

Assignment of Reliable Economic Route Packages to Regional Carriers

The suggestion concerning the surrendering of the T.C.A. Great Lakes route to a regional carrier is not likely to be feasible, as that route is an integral part of T.C.A.'s trans-Canada route. Even if this part of the trans-Canada route - assuming that it could be considered a separate unit - should fail

to bring T.C.A. any profits (as few internal routes do), it may be assumed that the current expenses and possibility part of the overhead allocated to this portion of the route are recovered. If, therefore, T.C.A. surrendered the Great Lakes route to other interests, this would weaken the overall financial position of the company.

If we assume that the Great Lakes portion of the trans-Canada route could be operated profitably (which is by no means certain), its inclusion in a route package together with less reliable routes (which would probably be money-losers) might result in a route package which still could not be operated at a profit. It is extremely doubtful that such a move would lead either to a more efficient service or an increase in the volume of scheduled flights. It should also be kept in mind that the trans-Canada route is an inter-provincial service and that, therefore, a suggestion of this nature might be unfavourably received by the Federal authorities on whose consent the implementation of the plan would depend.

Clearing House for Charter Flights

The possibility of establishing a central clearing house for the purpose of collecting details concerning specific charter flights, so that other people desiring to fly between the specific points involved might join such flights, is felt to merit consideration. This would require a special organization (board, commission), possibly with agents in the larger centres who would, at all times, be informed of the movements of chartered planes between their community and others. The organization might be able to recover its expenditures by levying a small surcharge on the fees paid by passengers. It is evident that this plan would require the co-operation of charter plane operators.

One of the drawbacks of the plan lies in the fact that most charter flights are arranged at very short notice - quite often a day or less. However, since for a plane thus shared by two or more people the fare per passenger would be considerably below the charge to one individual user, interested parties might well be induced to declare their intention of chartering a plane at the earliest possible moment.

It is recommended that organizations such as the Northern Development Committee or the Northern Ontario Development Associations convene a

meeting with charter plane operators in order to determine the feasibility of implementing a plan as outlined above.

Subsidized Regular Air Transportation Services

Both the reports prepared by the Northwestern Ontario Development Association and our research appear to indicate that it is most unlikely that any substantial increase of air transportation services can be realized in Northern Ontario without some form of subsidization. We suggest, therefore, that all avenues which might lead to improved rapid transportation in the north - other than scheduled air services - be thoroughly explored. This might result in the formulation of plans entailing the construction of new highways, the introduction of new bus services, the initiation of additional rail-liner services or the establishment of a clearing house for charter flights. It is possible that the implementation of these plans would still be considered inadequate and that - with respect to certain communities or areas - only regular air transportation services could solve the problem. In view of our findings, it may be considered a certainty that the required scheduled services could only operate with a government subsidy. The Government would, therefore, be faced with the decision to determine whether the stimulus such services might give to the Northern Ontario economy would justify the payment of subsidies in respect of air transportation. This implies that the problem would no longer be considered in isolation, as a matter of transportation economics involving the movement by air of a certain number of people between specified centres, but within the much larger framework of a broad and comprehensive plan, embracing all aspects of economic and social development in Northern Ontario and in the Province as a whole.

If, on this basis, the Province should, in principle, be prepared to subsidize air transportation services in Northern Ontario, the adoption of the following procedures might be desirable:

- (1) In order to determine passenger potential in various municipalities, surveys should be conducted taking into account the exigencies of local situations.

- (2) If, on the basis of the requirements of a general economic development plan and the survey mentioned sub (1), a route, or routes, have been determined which require air transportation services, the Province could call tenders for those routes, with the understanding that a subsidy would be granted to the operator, compensating him for expected losses. The companies submitting offers would have to supply estimates of expected revenues and expenditures resulting from the operation of the service.
- (3) After having selected the most suitable offer, the Province would enter into an agreement with the transportation company, under which the latter would commit itself to providing specified flights for the period of one year while the Province would pay the company a fixed subsidy to cover the estimated loss plus a reasonable return on capital invested by the operator.
- (4) After one year, new tenders could be called, which might result in a new agreement between the Province and either the same company or a different company if the latter should submit a more attractive offer.
- (5) The procedure mentioned sub (3) and (4) could be repeated for several years. If a particular service does indeed contribute to further economic development, one might expect the amount of the subsidy to decrease from year to year. If, on the other hand, the subsidy should remain at the same level or even increase, it might be advisable for the Province to review the situation and - after expiry of agreements in force - consider withdrawal of the subsidy, which would presumably result in a discontinuation of the service involved.

The system of tenders is recommended in order to give all air transportation companies equal chances to participate, so that the Province

cannot be accused of favouring a specific company. The type of service would have to be determined in each case. It could vary from one or two flights per week to two flights per day.

It is, in our opinion, doubtful whether the system of subsidization applied in the United States by the Civil Aeronautics Board would be suitable for Northern Ontario. In the first place, the average number of passengers per flight on a subsidized local air route in Northern Ontario is, in many cases, likely to be below five - on one of the most promising local routes (Kapuskasing-Timmins) there was an average of only 5.6 - in which case no subsidy would be given under C.A.B. regulations. A subsidy - if granted - would, therefore, have to be much higher in Northern Ontario than it would be for comparable C.A.B.-subsidized routes in the United States. In the second place, the transportation of mail is probably less significant on local routes in Northern Ontario than in most areas in the United States, so that it would not substantially contribute to revenue. In the third place, we consider it advisable that a subsidy of this nature should be clearly identifiable, so that its increase or decrease over the years can be easily observed and its justification assessed. Where a number of hidden subsidies are in operation in the form of subsidized rates, mail contracts, free land or office space or exemptions from various fees or charges et cetera, it becomes almost impossible to determine to what extent the services involved are actually subsidized.

Air Transportation in Remote Areas of Northern Ontario

It is acknowledged that the concept of the "establishment of a system of airstrips in a north-south pattern or even in a fan having its southern focus at a main supply point, maintained 12 months a year thus enabling the most economical operation - a wheeled plane", as suggested in the Report of the Northwestern Ontario Development Association (Phase two), is soundly based, but only in regard to the more remote areas of Northern Ontario. In such areas, where there is little if any effective ground transportation, air transportation is a necessary precursor towards further accentuated economic development.

Construction of regularly operational airports in the remote areas would bring a two-fold benefit to the north. Assuming that regularly operational bases were constructed at points at present served by seasonally operational airports such as Moosonee, then services operated from these bases would benefit not only from year-round schedules, but also from the use of the more economical wheeled plane. It has been estimated that a wheeled plane has a comparative cost advantage up to 1 in 3 over planes fitted with skis or floats. Additionally, the construction of regularly operational bases could also benefit the north where they would result in the introduction of additional air services in Northern Ontario which might subsequently feed existing or possible future services in the more populated areas.

The map appended to this report shows that Moosonee is a relatively important crossroads of northern air services, in spite of the fact that the landing strip at this location is not suitable for year-round operations. It derives its significance as a centre of air services not only from air traffic within Ontario, but also - and possibly even more so - from traffic between provinces and with the Arctic. Other locations in our Province's far north could play a role in this sense as well.

We have emphasized on previous occasions (see our Report entitled "The Ontario Northland Railway in Relation to Economic Growth in Northeastern Ontario", dated June 7, 1963) the suitability of Moosonee as a supply centre for the Canadian Arctic. We again recommend that the establishment of a Northern Supply Base at Moosonee be given serious consideration and suggest that the Federal Government be urged to proceed with the construction of a permanent airport at Moosonee and investigate the possibility of providing such facilities at other locations in the far north of Ontario.

the first of the series of experiments was conducted in the laboratory of the
Department of Chemistry, University of California, Berkeley, California, U.S.A.
The results of the experiments are given in the following table, which shows the
effect of the concentration of the solution on the rate of reaction. The
concentration of the solution was varied from 0.01 to 0.10 mole per liter.
The rate of reaction was measured by the method of initial rates, and the
results are given in the following table. The rate of reaction increases
with the concentration of the solution, and the increase is in the
proportion of the square of the concentration. This is in agreement with
the theoretical equation for a bimolecular reaction. The results of the
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is in agreement with the theoretical equation for a bimolecular reaction.

IX CONCLUSIONS AND RECOMMENDATIONS

Our survey of air transportation services in Northern Ontario shows beyond any doubt that, in general, the possibility of air travel by means of regular services between communities in this part of the Province is quite limited. It has been argued that this situation tends to be detrimental to the economic development of the Province's north and proposed that remedial measures by the Federal and Provincial governments should consist of higher financial contributions to the construction and maintenance of airports. However, as this study points out, the main deterrent to the expansion of air transportation services in Northern Ontario is not in the first place a lack or insufficiency of landing facilities; the crux of the matter is the absence of a traffic potential sufficient to support profitable airline services.

The conclusion may, therefore, be drawn that additional regular services could only operate under a system of subsidization. In view of this, the most logical approach to this matter is, in our opinion, to make the most of the scheduled air services now available by providing for rapid and efficient transportation from various communities lacking air services to landing points on routes travelled by T.C.A. and other companies. Since air feeder services are costly and probably would require subsidization, serious consideration should be given in the first place to existing surface transportation and the extent to which they do, or can be made to interlock efficiently with airline services. Where satisfactory conditions are absent, possibilities for improvement by the construction of new highways or roads and the initiation of new bus or rail-liner services should be investigated. This might lead to solutions which would either provide a close tie-in with air services or make for a satisfactory alternative to air transportation. An example of the latter condition is the highway between Fort Frances and Atikokan which, when completed, will reduce the demand for air transportation between the two communities

to negligible proportions. A more intensive use of charter flights by arranging increased participation in these flights through a central clearing house might also help to close the gap between demand and supply of reasonably-priced rapid transportation services.

It is possible that even a perfectly co-ordinated system of surface and existing air transportation services will not in all instances offer a satisfactory solution. It may still leave certain areas or communities with a need for rapid transportation which can only be met by additional air services operating, at least, with some degree of regularity. It is obvious, from observations made in this Report, that such a service probably could not operate on a profitable basis and would have to be subsidized. Any decision by the Province to subsidize air services on a certain route should, in our opinion, be based on considerations which take into account not only the immediate interests of the areas or communities to be served, but also the contribution which the particular air service could make to the general economic development of the Province's north and of Ontario as a whole. In other words, it should be determined whether the suggested air service is likely to constitute a necessary link within a framework composed of various projects undertaken or planned in the private and public sectors of the economy which, together, are expected to raise the level of economic development. If, on this basis, it is decided that a subsidy is warranted, a method of direct subsidization as outlined in Chapter VIII of this Report is deemed advisable.

In the sparsely populated far-northern areas of Ontario, air services are frequently essential for the further development of our natural resources. They also play an important role within the system of communication with the Canadian arctic regions and, as such, are significant with regard to Federal northern development policies. In order to make these services more effective, it is recommended that the Federal Government be urged to increase the number of permanent airbases, suitable for wheeled planes, in Northern Ontario and in particular at Moosonee.

Recommendations

Our studies of the transportation problems of Northern Ontario with particular reference to air services and our observations as expressed in this Report, have prompted us to make the following recommendations:

- 1) Whereas the traffic potential for air transportation in Northern Ontario is such that a further extension of air services is not likely to be possible without considerable subsidization and in order that the potentialities of co-ordinated surface and air transportation services may be fully utilized, it is recommended that the possibilities of improving rapid surface transportation services through the construction of new highways and roads and through the establishment of new bus and rail-liner services in general and of surface feeder services interlocking with existing air services in particular, be thoroughly investigated.
- 2) Whereas the comparatively high cost of charter flight services is in many cases a deterrent to the use of these services and a wider participation in each flight would reduce considerably the cost per passenger, it is recommended that the possibility of establishing a clearing house for charter flights in Northern Ontario be given serious consideration.
- 3) Whereas the implementation of the measures suggested under 1) and 2) may still leave a need for additional air services in particular areas, it is recommended that the Province, determine whether air service on each of the suggested routes would contribute to economic growth, possibly, as an integral part of an over-all economic development plan for Northern Ontario and - if satisfied that a material contribution can be made - consider direct subsidization of that particular service as outlined in Chapter VIII of this Report.

4) Whereas in some of Ontario's far-northern areas where surface transportation facilities are not available, air services open the possibility of spearheading the further development of natural resources and whereas air bases in these areas facilitate the transportation of goods to Canada's arctic regions, it is recommended that the Province urge the Federal Government to establish a major development airport at Moosonee and possibly minor airports at other suitable locations in Northern Ontario.

NOTE TO MAP OF AIR TRANSPORTATION SERVICES
IN NORTHERN ONTARIO

The map shows Class 1 and Class 2 air services in Northern Ontario only. Thus, for example, the Class 4 service operated on a Class 3 basis by Mattagami Airlines Ltd. between Kapuskasing and Timmins is not shown. All airports or aerodromes which are recorded in the Airport and Aerodrome Directory published by the Department of Transport, Ottawa, in April 1963, are included. However, the airstrip at Henrietta Maria, which is used by Austin Airways Ltd., is not included in that Directory and, consequently, is not indicated on the map.

AIR TRANSPORTATION FACILITIES IN NORTHERN ONTARIO

Prepared By The

SPECIAL RESEARCH AND SURVEYS BRANCH
ONTARIO DEPARTMENT OF ECONOMICS AND
DEVELOPMENT

LEGEND TO AIRPORTS

The airports (land, water and/or ice) are classified as follows:-

- *** Land - I.F.R. (Instrument Flight Rules)
- ** Land - V.F.R. (Visual Flight Rules) (Regularly Operational)
- * Land - V.F.R. (Non-regularly Operational)
- + Water and/or ice bases. These bases are not indicated by name on the map. To save space they are indicated by number and type symbol.

1. ADRIAN LAKES (Water)
2. ALBERTA LAKES (Water) (2 Bases)
3. AMBERIDGE (2 Bases)
4. ATTERIDGE (2 Bases)
5. AITON (Water)
6. BELL LAKES
7. BARNHART LAKES
8. BARNHART LAKES (2 Bases)
9. BARNHART LAKES
10. BARNHART LAKES
11. BIG HAVES LAKES
12. BIG HAVES LAKES (3 Bases)
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Total, Water Bases 48
Total, Water & Ice Bases 50
Ice Bases 2
Total, Water and/or Ice Bases 101

LEGEND

Railways - ————
Highways - ————
Highways proposed & under construction - - - - -
Cities, Towns, Villages - ●
Scheduled Air Routes - ————

Over 50,000
Over 50,000 to 50,000
Over 50,000 to 50,000
Over 50,000 to 50,000

Scale: Miles
0 10 20 30 40 50



